arthroplasty. Because humeral mating member **202** is patient-specific and includes recesses **222** and **224** for different procedures that are designed to mate with cut guide member **204**, humeral cut guide system **200** can be used to prepare the patient for each of the primary and secondary procedures (e.g., anatomical or reverse shoulder arthroplasty) that are determined before surgery.

Now referring to FIGS. **15** to **18**, another exemplary humeral cut guide system **300** is illustrated. Cut guide system **300** is similar to humeral cut guide system **200** in that cut guide system **300** includes a primary cut guide member including a humeral mating member **302** and a humeral cut guide member **304**. In the present embodiment, however, humeral mating member **302** and humeral cut guide member **304** are unitary. Humeral mating member **302** includes a plurality of grasping members **306**. In the illustrated embodiment, humeral mating member **302** includes two grasping members **308** and **310** that extend outward from a central hub **314**. It should be understood, however, that any number of grasping members **306** may be used without departing from the scope of the present disclosure.

Each grasping member **306** includes a proximal end **316** fixed to central hub **314** and a distal end **318** positioned away from central hub **314**. Central hub **314** and grasping members **306** each include an interior or bone-engagement surface **315** and an exterior surface **317** that faces away from humeral bone **26**. Similar to humeral cut guide system **52**, bone-engagement surface **315** is complementary and made to substantially mate and match in only one position (i.e., as a substantially negative or mirror or inverse surface) with a three-dimensional bone surface **60** of humeral bone **26** with or without associated soft tissues, which is reconstructed as a 3-D image via the aforementioned CAD or software. In the illustrated embodiment, grasping members **308** and **310** are substantially the same size. It should be understood, however, that grasping members **306** may be differently sized without departing from the scope of the present disclosure.

Central hub **314** may include cylindrical base portion **320**. A tubular shaft **322** may extend outward from base portion **320** that defines a patient-specific pin guide aperture **324**. Pin guide aperture **324** allows for passage of a drill (not shown), that allows humeral bone **26** to be reamed at the appropriate location for any desired resurfacing of humeral bone **26**. In addition, pin guide aperture **324** allows humeral bone **26** to be reamed for stemless prosthetic resections, if desired.

As best shown in FIGS. **16-18**, humeral cut guide member **304** includes outer face **328** and an opposing inner face **330** that are connected by side faces **332**. A patient-specific primary elongate slot **334** extends between outer face **328** and inner face **330** for receipt of a cutting blade of, for example, a bone saw for resurfacing humeral bone **26**. Although only a single primary elongate slot **334** is illustrated, it should be understood that a plurality of elongate slots **334** may be provided that provide the surgeon with different cutting planes to select for the patient.

Cut guide member **304** is configured similar to humeral guide member **54**. That is, cut guide member **304** additionally includes a pair of patient-specific cylindrical apertures **352** that allow for passage of a drill for reaming humeral bone **26**. After reaming of humeral bone **26**, a pair of pins **88** may be implanted in humeral bone **26**. Pins **88** may be, for example, Steinman pins or K-wires. Any type of pin known to one skilled in the art, however, may be implanted. After implantation of pins **88**, humeral mating member **302** and cut guide member **304** may be removed from humeral bone **26** with pins **88** remaining in place. Secondary cut guide member **56** may then be mated with pins **88** to provide yet another cutting plane for the surgeon to select. Again, it should be understood that pins **88** are not necessarily oriented relative to humeral bone **26** to provide a different cut height. In contrast, cylindrical apertures **352** may include an orientation that provides a different (i.e., non-parallel) cutting plane once pins **88** are mated with humeral bone **26** and secondary cut guide member **56** is coupled to pins **88**.

According to the above-described embodiment, humeral cut guide system **300** allows for a plurality of cutting heights and planes to be selected by the surgeon performing humeral resurfacing. Because humeral mating member **302** and humeral cut guide member **304** are patient-specific and include patient-specific elongate slot **322** and patient-specific cylindrical apertures **352**, humeral cut guide system **300** can be used to prepare the patient for each of the primary and secondary procedures (e.g., anatomical or reverse shoulder arthroplasty) that are determined before surgery.

The foregoing description of the embodiments has been provided for purposes of illustration and description. It is not intended to be exhaustive or to limit the disclosure. Individual elements or features of a particular embodiment are generally not limited to that particular embodiment, but, where applicable, are interchangeable and can be used in a selected embodiment, even if not specifically shown or described. The same may also be varied in many ways. Such variations are not to be regarded as a departure from the disclosure, and all such modifications are intended to be included within the scope of the disclosure.

What is claimed is:

1. A humeral cut guide system for resectioning or resurfacing a humeral head, comprising:

a primary cut guide member configured to be removably coupled to the humeral head, the primary cut guide member including a patient-specific bone-engaging surface, a primary elongate slot that defines a primary cutting plane, and including a pair of cylindrical apertures configured to receive a pair of guide pins; and

a secondary cut guide member including a pair of through-holes configured to mate with the pair of guide pins, the secondary cut guide member including a secondary elongate slot that defines a secondary cutting plane.

2. The humeral cut guide system according to claim **1**, wherein the primary cut guide member includes a protrusion extending from an exterior surface thereof, the protrusion defining a contact surface for manipulation of the primary cut guide member relative to the humeral head.

3. The humeral cut guide system according to claim **1**, wherein the primary cut guide member includes an aperture formed therein that is configured to provide a line of sight to the humeral head when coupling the primary guide member to the humeral head.

4. The humeral cut guide system according to claim **1**, wherein the primary cut guide member includes a shelf protruding from an exterior surface thereof, the shelf at least partially defining the primary elongate slot.

5. The humeral cut guide system according to claim **4**, wherein cylindrical apertures are formed on opposing ends of the shelf.

6. The humeral cut guide system according to claim **1**, wherein the patient-specific bone engaging surface is complementary to a patient bone surface of the humeral head.

7. The humeral cut guide system according to claim **1**, wherein the primary cut guide member includes a tab extending therefrom, the tab configured to correspond to a patient-specific groove of the humeral head.